Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

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March 11, 2016

Mr. Joseph Dufresne
Saint-Gobain Abrasives Inc.
1 New Bond Street
Worcester, MA 01606

RE: Worcester
Transmittal No.: X241383
Class: OP
FMF No.: 130510
AIR QUALITY PLAN APPROVAL

Dear Mr. Dufresne:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Non-major Comprehensive Plan Application ("Application") listed above. This Application concerns the operation of the Conventional and BZZ organic abrasive wheel manufacturing in Plant 8 at your facility located at 1 New Bond Street in Worcester, Massachusetts ("Facility"). The Application bears the seal and signature of Nicholas Steenhaut, Massachusetts Registered Professional Engineer Number 49661.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control" regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-O, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

Saint Gobain Abrasives Incorporated (SGA) manufactures thousands of unique abrasive wheel products which can be classified into over 25 different end use wheel families. Plant 8 organic abrasive wheel manufacturing process involves the mixing, aging, molding and curing of phenolic resin/abrasive mixtures and other organic components such as furfural and formaldehyde into abrasive wheels. Current operations consist of mixing abrasive grain, solvent wetting agent, and resin binder together; pressing the mixture into the wheel shapes; and curing the wheels in gas-fired ovens. The process results in volatile organic emissions (VOC), Hazardous Air Pollutants (HAP) and particulate matter (PM). The existing gas-fired ovens are recirculating ovens that are designed for odor control. PM from the BZZ and conventional wheel mixing, and from conventional wheel molding is controlled by 6 dust collectors, which are either cartridge filters or fabric filter (bag houses). In the BZZ area, PM from the BZZ mold filling machine and from BZZ wheel finishing stations is controlled by two dust collectors.

The organic abrasive wheel manufacturing process currently conducted in Plant 8 involves the mixing, aging, molding, and curing of a mixture of phenolic resins, organic liquids, inorganic fillers/binders, and abrasive grit to form organic abrasive grinding wheels. While all organic wheels are manufactured using mixing, aging, molding and curing processes, two differing types of manufacturing processes are used:

- The majority of organic abrasive wheel manufacturing involves ambient temperature molding, with virtually all of the resin curing and cross-linking occurring in the final cure ovens. This 'Conventional' wheel production process is the principle means by which abrasive wheels are manufactured at Plant 8. Abrasive wheels are principally manufactured using the "conventional" process in Plant 8.
- The second type of manufacturing process employed at Plant 8 is known as the 'BZZ' wheel production process, in which steam assisted molding machines partially cure the resins during the steam molding step. Final cure oven cycles for the BZZ process are shorter, as significant percentage of the curing step has already occurred in the steam assisted molding machines.

Both types of wheel mixtures, Conventional and BZZ, are prepared using recipes that include mixtures of phenolic resins, abrasives, fillers, and other organic components that function as binders or assist in the reactions that help bind the wheel material together. The abrasive wheel manufacturing processes (for both Conventional and BZZ) at Plant 8 can be divided into the following process segments that are grouped by the location in Plant 8 where they occur:

1. Mixing, Aging, and Molding

   Conventional wheel and BZZ wheel mixture preparation includes the brief mixing of the abrasive mixtures conducted at ambient temperature. During mixing, the prescribed amounts of phenolic resins, low vapor pressure alcohols, and inert ingredients (abrasive additives) are mixed together in one of the facility's large mechanical mixers.

Once the Conventional wheel mixing is complete, the mixture is transferred into closed containers and allowed to age prior to molding. Staging/aging of the wheel mixtures occurs at ambient temperature in the main mixing/molding area of Plant 8, after which the Conventional wheel mixtures are transferred into feed hoppers of Conventional (ambient temperature) mold machines, which are also located in the Main Mixing/Molding Area of Plant 8. At the mold presses, the mixtures are transferred from the hopper (primarily a manual process, although the facility has a small number of robots for selected wheel products) into the steel molds, after which the pneumatic mold machines compress the mixture at ambient temperature into the wheel-shaped product.

In contrast, after mixing, BZZ wheel abrasive mixtures are placed into open top containers for a brief period of aging/staging in the main mixing and molding area of Plant 8. After the brief aging/staging period, the mixtures are moved to the adjacent BZZ Molding room, where the BZZ mixtures are transferred into steel mold forms, and then pre-cured using steam in the BZZ mold presses. Approximately 70% of the total BZZ wheel curing and resin cross-linking process occurs during steam molding.

2. Oven Curing

For conventional grinding wheels, the curing and resin cross-linking process is accomplished during the oven curing step. For the BZZ grinding wheel products, the cure ovens accomplish the final 30% of curing required for the pre-cured BZZ wheels. The facility operates approximately 34 natural-gas fired ovens that are used to cure the molded wheels by raising and holding (over a specified time) the temperatures of the wheel products. Different wheel products require different duration and temperature profiles, ranging from approximately 100 to 200 degrees Celsius (ºC), with total cure durations ranging from 30 to 72 hours.

The cured wheels are trued to shape, and speed tested. Particulate matter emissions from truing activities are not included in this Plan Approval, Tr. #241383, as discussed further below.

Post curing operations also include wheel stenciling/painting, which emit small amounts of VOC. Small amounts of VOC are also emitted from mold and pan coatings and miscellaneous cleaning with solvents.

The production of abrasive wheels using organic materials in Plant 8 was originally approved in Air Quality Plan Approval Transmittal Number (Tr #) 118968 on June 17, 1998. A Best Available Control Technology (BACT) determination was made at that time that limited VOC and PM emissions from the production of abrasive grinding wheels in Plant 8. Plan Approval Tr# 118968 also limited curing oven NOx emissions (curing and combustion), and combustion-related CO, PM, SO_2 and VOC emissions from the curing ovens.

MassDEP issued on March 1, 2006, a Limited Plan Approval Tr# W073550 which approved the replacement of eleven (11) dust collectors previously permitted under Plan Approval Tr# 118968, with the installation of two new large Torit® dust collectors to handle dry powders from the mixing and bond batch operations associated with the organic abrasive wheel manufacturing. The two dry air filter dust collectors capture Particulate Matter (PM) emissions from those operations, and are located at the North

end of Plant 8 (Building 120). MassDEP determined in Plan Approval Tr# W073550 that the PM removal efficiency of 99.96% for these dust collectors met Best Available Control Technology (BACT).

SGA entered into an ACOP-CE-13-704-NT (ACOP) on September 18, 2013 after SGA's calculated VOC emissions from the Plant 8 organic wheel mix/mold/cure emissions (using historical emission factors) exceeded the annual VOC limits established in air quality Plan Approval Tr# 118968. The ACOP required SGA to conduct VOC emission testing in Plant 8 and PM emission testing at the BZZ Torit® baghouse exhaust and to quantify ammonia emissions. During October 2103, a full scale replicated wheel manufacturing process and emission sampling was conducted within Temporary Total Enclosure (TTE) in accordance with EPA Method 204 criteria, to quantify VOC, phenol and formaldehyde emissions from ambient temperature mixing, aging and molding operations.

To quantify emissions from BZZ steam molding, the BZZ Room was configured as a TTE to quantify VOC, phenol, formaldehyde and ammonia emissions from steam molding of BZZ wheel products, which accomplishes a portion of the curing process for BZZ wheel products. And finally, curing process VOC, phenol, formaldehyde and ammonia emissions were measured from three curing ovens (i.e. two ovens charged with conventional abrasive wheel products; and one oven charged with BZZ wheel products). Emissions from each oven where tested at five 1-hour intervals over the course of firing cycles that typically run from 30 to 72 hours in duration. SGA used USEPA Reference methodologies to develop conservative emission factors by taking into account the worst case products and high volume production. A summary of emission factor data and results are presented in Table 2 notes.

This Plan Approval, Tr#241383, includes emission units of VOC *not* covered in the facility's Reasonably Available Control Technology (RACT) Plan for VOC emissions. This Plan Approval replaces the VOC limits for the Plant 8 organic wheel mix/mold/cure manufacturing operations included in the prior Plan Approval, Tr# 118968, with revised VOC limits based on October 2013 source testing. This plan approval also adds new short-term and long-term limits for phenol, formaldehyde, and ammonia for these operations based on the October 2013 emission testing program. Certain Emission Unit (EU) numbers have been updated for this plan approval for existing sources (no new emission sources are being installed).

This Plan Approval, Tr# 241383, also includes particulate matter emission sources covered under Tr# W073550 and Tr# 118968 (with the exception of the truing operations). The truing operations were relocated to Plant 7 and will continue to be covered under Tr# 118968 (in combination with other approval letters issued for dust collector in-kind replacements associated with the truing equipment).

SGA is not proposing to modify any other existing emission limits for other pollutants for the Plant 8 organic wheel mix/mold/cure operations that were previously established by either Tr# 118968 or Tr# W073550. Specifically, SGA is not proposing to modify NOx, SO_2, CO and PM emissions limits for the curing ovens as set forth in the original Plan Approval Tr# 118968. However, the combustion-only VOC limit for the curing ovens set forth in Tr#118968[1] is being eliminated, and combustion-related VOC emissions are included in the VOC limit for curing operations that is being established in this Plan Approval.

[1] Refers to Plan Approval Tr# 118968

None of the sources included in this Plan Approval are being substantially reconstructed or altered, with the exception of certain sources (certain individual Plant 8 organic wheel natural -gas fired ovens, certain spray painting sources, and particulate matter sources) that have been decommissioned and are removed from this Plan Approval.

This Plan Approval:

1. Updates the emission factors for the BZZ and Conventional wheel production.
2. Increases the long-term VOC emission limits for the BZZ and Conventional wheel production (mix/mold/cure) by 0.61 tons per year, from 14.39[2] to 16.0 TPY.
3. Places an emission cap on the hazardous air pollutants phenol and formaldehyde from BZZ and Conventional wheel production.
4. Establishes an emission limit for ammonia from BZZ and Conventional wheel production.
5. Retains the VOC emission limit for Plant 8 Miscellaneous VOC sources of 4.3 TPY.
6. Increases the overall VOC emission limit for the Plant 8 wheel production process (including Miscellaneous VOC sources and cure oven fuel combustion VOC emissions) by 1.61 tons per year from 18.69[3] to 20.3 tons per year.
7. Updates changes, removals, and/or replacements of the emission units (see Attachment A for a complete list).
8. Corrects errors and typos in the two prior Plan Approvals.
9. Updates certain EU numbers for sources covered by this Plan Approval.
10. Updates the format of the Plan Approval to the current Plan Approval template.
11. Supersedes Plan Approval Tr# W073550 in its entirety. However, all application materials submitted as part of this Plan Approval still apply.
12. Supersedes Tr# 118968 with the exception of the truing particulate emission sources.
13. Requires pressure sensing equipment on all particulate and cartridge collection devices.

2. EMISSION UNIT IDENTIFICATION

Each Emission Unit ("EU") identified in Table 1 is subject to and regulated by this Plan Approval:

[2] 13.7 TPY VOC from curing + 0.69 TPY VOC from cure oven fuel combustion
[3] 13.7 TPY VOC from curing + 0.69 TPY VOC from cure oven fuel combustion + 4.3 TPY VOC from Plant 8 Miscellaneous Sources

Table 1			
EU	**Description**	**Design Capacity**	**Pollution Control Device**
120-1	Organic Wheel Mixing/Aging/Molding (gaseous fugitive emissions[1])		none
120-2	34 Individual Natural-Gas Fired Ovens for Organic Wheel Curing[2]	1.5 MMBtu/hr each	none
120-3	Miscellaneous fugitive VOC emission sources: epoxy, fugitive stencil cleaning, hand wipe, WD-40, IPA, mold release, aerosol paint can use		none
120-49	BZZ Mold Filling Station (EU is for PM emissions only; gaseous fugitive emissions from this operation are represented by EU 120-1)		Dust Collector: Torit® Model DFT 3-24
120-50	Several wheel finishing stations; 'BZZ Finishing Operations' (in BZZ room)		Dust Collector: United Air Specialists "Dust Hog" Model FJH16-2
120-57	Maternini/TMX Mold Press (EU is for PM emissions only; gaseous fugitive emissions from this operation are represented by EU 120-1)		Dust Collector: United Air Specialists "Dust Hog" Model FJ116-4 & Spencer Vac
120-62	Various Mixers (EU is for PM emissions only; gaseous fugitive emissions from this operation are represented by EU 120-1)		Dust Collector: Torit® (East Unit) Model #376 RFW AW
120-63	Various Mixers (EU is for PM emissions only; gaseous fugitive emissions from this operation are represented by EU 120-1)		Dust Collector: Torit® (West Unit) Model #376 RFW AW

Table 1			
EU	**Description**	**Design Capacity**	**Pollution Control Device**
120-TempDC	Various Mixers (1/13/15 letter) 'mixing & bond batch operations' (EU is for PM emissions only; gaseous fugitive emissions from this operation are represented by EU 120-1)		Dust Collector: United Air Specialist Model FJH-32
Painting	Various Organic Wheel Painting/Stencilling in Booths including BZZ stencil painting booth		None (other than fabric filters for PM)

Table 1 Key:

EU = Emission Unit
IPA = isopropanol
MMBtu/hr = million British thermal units per hour
PM = particulate matter
VOC = volatile organic compound

Table 1 Notes:

1. EU 120-1 covers gaseous fugitive emissions from organic wheel mixing/aging/molding. Particulate matter emissions associated with organic wheel mixing/aging/molding operations are covered under EUs 120-49, 120-50, 120-55, 120-57, 120-62, 120-63.
2. EU 120-2 covers curing and fuel-combustion emissions from the 34 curing ovens.

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 and shall use the Emission Factors in Table 2A:

Table 2				
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**	
			Short-Term Limits	**Tons per Year [1]**
120-1 & 120-2		VOC	3.0 TPM	16.0

Table 2				
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**	
			Short-Term Limits	**Tons per Year [1]**
120-1 & 120-2		Phenol	0.4 TPM	2.4
		Formaldehyde	0.2 TPM	1.0
		Ammonia	0.5 TPM	2.7
120-2		NOx (process & combustion)	5.8 TPM	28.9
		SO_2 (combustion only)	0.022 TPM	0.11
		CO (combustion only)	0.76 TPM	3.79
		PM (combustion only)	0.44 TPM	2.17
120-3		VOC	1.0 TPM	4.3
120-49	Pressure drop between 0.5 and 4 inches of water	PM	0.0013 gr/dscf 0.15 TPM	0.45
120-50	Pressure drop between 0.5 and 4 inches of water	PM	0.0001 gr/dscf 0.01 TPM	0.03
120-57	Pressure drop between 0.5 and 4 inches of water	PM	0.0001 gr/dscf 0.01 TPM	0.02
120-62 and 120-63	Pressure drop between 0.5 and 4 inches of water	PM	0.0012 gr/acf or 99.96 % control efficiency; 1 TPM each	2.70 total 1.35 each
			Opacity $\leq$ 5 % during operating times	
120-TempDC	Pressure drop between 1.0 and 4 inches of water	PM	0.001 gr/dscf or 99.99 % control efficiency; 0.25 TPM	0.5
Painting	< 670 gpm materials containing VOC	VOC	Included under 120-3	Included under 120-3

Table 2				
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**	
			Short-Term Limits	**Tons per Year [1]**
Painting	< 2000 gpy materials containing VOC	VOC	Included under 120-	Included under 120-3
	Exempt coatings ≤ 55 gals per 12 month rolling	VOC		
	< 3.5 pounds VOC per gallon (minus water)	VOC		
Total for Table 2 EUs		VOC	4.0 TPM	20.3
		Phenol	0.4 TPM	2.4
		Formaldehyde	0.2 TPM	1.0
		Ammonia	0.5 TPM	2.7
		PM	3.06 TPM	5.95
		NOx	5.8 TPM	28.9
		SO_2	0.022 TPM	0.11
		CO	0.76 TPM	3.79

Table 2 Key:

CO = Carbon Dioxide

EU = Emission Unit

HAP (total) = total Hazardous Air Pollutant for all emission units

gpm = gallons per minute

gpy = gallons per year

gr/acf = grains per actual cubic feet

gr/dscf = grains per dry standard cubic feet

NOx = Nitrogen Oxides

$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns

PM_{10} = Particulate Matter less than or equal to 10 microns in diameter

SO_2 = Sulphur Dioxide

Total VOC = Volatile Organic Compounds for all emission units

TPM = tons per month

VOC = Volatile Organic Compounds

% = percent

< = less than

≤ = equal to or greater than

& = and

Table 2 Notes:

1. Tons per year means tons per consecutive12-month period
2. Emission factors associated with EU-120-1 are presented in Table 2A

Table 2A – EU 120-1 Emission Factors for Organic Wheel Mixing/Aging/Molding/Curing				
Organic Wheel Type	**VOC Emission Factor (lbs/Klbs TOC Used)**	**Phenol Emission Factor (lbs/Klbs Resin Used)**	**Formaldehyde Emission Factor (lbs/Klbs Resin Used)**	**Ammonia Emission Factor ((lbs/Klbs Resin Used)**
BZZ Wheel Type	6.94	0.54	0.07	0.58
Conventional Wheel Type	7.52	0.76	0.16	0.96

Table 2A Key:

lbs/Klbs = pounds per 1000 pounds used TOC= Total Organic Compounds

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

Table 3	
EU	**Monitoring and Testing Requirements**
120-2	1. The Permittee shall monitor oven exhausts daily for odor and visible emissions.
120-49,120-50, 120-57, 120-62 120-63,120-TempDC	2. The Permittee shall perform routine weekly inspections and maintenance on the dry air filters in accordance the manufacturers' recommendations.
	3. The Permittee shall monitor the hopper associated with each dust and cartridge collection device once per day to verify that the hoppers are not overfilled. As an alternative, continuous electronic monitoring of collection vessels under hoppers can be used to insure hoppers are not overfilled.
	4. If there is an upset condition related to a dust and cartridge collection device or an observation of visible emissions from a stack, the Permittee shall monitor the opacity from the affected stacks serving the dust collection devices using USEPA Method 9 at least once per 24 hour period during daylight hours.

Table 3	
EU	**Monitoring and Testing Requirements**
120-49,120-50, 120-57, 120-62 120-63,120-TempDC	5. Once per calendar quarter, the Permittee shall: a. Check exhaust for any immediately apparent problem; b. Verify the unit is operating within the proper pressure drop range; c. Verify that the collector draw off mechanisms for each baghouse is not clogged; and d. Verify proper operation of the shakeout/pulse jet bag cleaning mechanism. e. Visually inspect the condition of the bags for tears.
	6. The Permittee shall perform a black light test on each dust collection device on an annual basis.
120-57, 120-62, 120-63, 120-TempDC	7. The Permittee shall conduct compliance emission testing within 180 days of the issuance of this Plan Approval to verify compliance with emission limits in Table 2.
Plant 8 wide	8. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration
	9. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13.
	10. At least 30 days prior to emission testing, the Permittee shall submit to MassDEP for approval a stack emission pretest protocol.
	11. Within 45 days after emission testing, the Permittee shall submit to MassDEP a final stack emission test results report.
	12. The Permittee shall ensure that equipment or emission monitoring systems installed for the purpose of documenting compliance with this Plan Approval shall be installed, calibrated, maintained and operated by the Permittee in sufficient manner to ensure continuous and accurate operations at all times.

Table 3 Key:

CMR = Code of Massachusetts Regulations
EU = Emission Unit Number
HAP = Hazardous air pollutant
MassDEP = Massachusetts Department of Environmental Protection
USEPA = United States Environmental Protection Agency
VOC = Volatile organic compounds

Table 4	
EU	**Record Keeping Requirements**

Table 4	
EU	**Record Keeping Requirements**
120-1 and 120-2	1. The Permittee shall record thousands of pounds (Klbs) of resins used to quantify phenol, formaldehyde and ammonia emissions.
120-1 and 120-2	2. The Permittee shall record thousands of pounds (Klbs) of total organic compounds (TOCs) used to determine VOC emissions.
120-2	3. The Permittee shall maintain records of routine inspections and maintenance performed on the ovens. At a minimum, the records must indicate the type of inspection and/or maintenance performed, the date completed, and any actions taken.
120-3 and Painting	4. The Permittee shall retain records of paint VOC and HAP contents in the form of MSD sheets (MSDS) or manufacturer's specification data.
	5. For those VOCs emitted from Plant 8 in quantities less than 1 ton per year, the Permittee may track actual emissions using a DEP approved surrogate or index based on the pounds of wheels produced.
	6. Adhesives and IPA (Balancing) usages shall be tracked by logging purchasing receipts or monthly material usage logs. Logs shall be totalled on a monthly basis. VOC content shall be determined based on manufacturers' MSDS.
Painting	7. The Permittee shall maintain records of paint VOC content in the form of MSD sheets or manufacturer's specification data.
	8. The Permittee shall track material usages with purchasing receipts and/or monthly inventories.
120-49, 120-50, 120-57, 120-62, 120-63. 120-TempDC	9. The Permittee shall maintain records of routine inspections and maintenance performed on each dust and cartridge collectors. At a minimum, the records must document the pressure drop across each collection device observed weekly, the type of inspection and/or maintenance performed, such as hopper unloading (daily or weekly), the date completed, and any actions taken. The records shall be dated and initialled by the operator.
	10. The Permittee shall maintain a record of all malfunctions of the dust and cartridge collectors shall include the date and time of the malfunction, corrective actions taken, and the date and time the dust collector returned to normal operation. These records shall be maintained at or near each of the individual collection devices.
	11. The Permittee shall maintain a record of all opacity reading results and black light test conducted on the dust and cartridge collectors.
	12. The Permittee shall maintain an updated standard operating procedure (SOP) for each dust and cartridge collector which defines the procedures and time lines required to address malfunctions on each dust and cartridge collector.
120-TempDC	13. The Permittee shall maintain a record of each start and shut down of the baghouse.

Table 4	
EU	**Record Keeping Requirements**
Plant 8 wide	14. The Permittee shall maintain a record keeping system to track information necessary to quantify monthly and annual VOC, Phenol, Formaldehyde, Ammonia, PM, NOx, SO_2, and CO emissions. Emissions shall be tracked and quantified on a monthly basis. Each monthly total shall be incorporated into a 12 month rolling total.
	15. The Permittee shall maintain adequate records on-site to demonstrate compliance status with all operational, production, and emission limits contained in Table 2 above. Such records may include daily production records emission test results, monitoring equipment data and reports. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping.
	16. The Permittee shall maintain up to date information and compliance records on site. Record keeping shall at a minimum include: a. Compliance records sufficient to demonstrate that emissions have not exceeded what is allowed. Such record may include monthly production records, raw material usage rates, fuel purchase receipts, emission test result, monitoring equipment data and reports. b. A record of routine maintenance activities performed on the emission unit, control equipment and monitoring equipment including at a minimum the type or a description of the maintenance performed and the date and time the work was completed. A record of all malfunctions on the emission unit, control equipment and monitoring equipment including, at a minimum, the date and time the malfunction occurred, a description of the malfunction and the corrective action taken, the date and time the corrective actions were completed and the emission unit returned to compliance.
	17. The Permittee shall maintain records of monitoring and testing performed, as required by Table 3.
	18. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) and PCD(s) approved herein on-site.
	19. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	20. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) PCD(s), and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.

Table 4	
EU	**Record Keeping Requirements**
Plant 8 - wide	21. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	22. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	23. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

CMR = Code of Massachusetts Regulations
EU = Emission Unit
HAP = Hazardous air pollutant
HYC = Hydrocarbons
IPA = isopropanol
MassDEP = Massachusetts Department of Environmental Protection
MSD = material safety data
PCD = pollution control device
SOMP = standard operating and maintenance procedure
USEPA = United States Environmental Protection Agency
VOC = Volatile organic compo

Table 5	
EU	**Reporting Requirements**
Plant 8-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Central Regional Office of MassDEP, BAW Permit Chief by telephone: 508-767-2845, email: Roseanna.stanley@state.ma.us or fax : 508-792-7621, as soon as possible, but no later than three (3) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form including VOC, HYC, HAP and ammonia emissions. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2) (e), 7.03, 7.26, etc.), which did not require Plan Approval.

Table 5 Key:

CMR = Code of Massachusetts Regulations
IPA = Isopropanol

EU = Emission Unit

HAP = Hazardous Air Pollutants

HYC = hydrocarbons

MassDEP = Massachusetts Department of Environmental Protection

VOC = Volatile Organic Compound

4. SPECIAL TERMS AND CONDITIONS

A. The Permittee is subject to, and shall comply with, the Special Terms and Conditions as contained in Table 6 below:

Table 6

EU	Special Terms and Conditions
120-1 and 120-2	1. The Permittee shall install, operate, and maintain all equipment in conformance with the information contained in the original application, including stack heights, air flow rates to the control equipment. This Plan Approval does not restrict the make and model number of specific equipment provided the Permittee can demonstrate upon request from MassDEP that equipment installed under this Plan Approval is equivalent to that as noted in the application.
	2. The Permittee may request that the Plan Appproval be evaluated or modified if a listed process is eliminated, sold or transferred to a different business. The Permittee will then work with the Department to properly adjust the total long-term emission limit for that business unit.
	3. The Permittee shall conduct testing or request that the manufacturer certify the VOC content (i.e., report MSDS data) and report the results to the Department prior to using in production a new material or formulation containing VOCs not otherwise covered or exempted under this Plan Approval.
120-3	4. The Permittee shall implement good housekeeping measures and work practice procedures to minimize all VOC emissions by: a. Storing all formulations containing VOCs in covered containers b. HVLP spray gun application shall be used at all paint spray stations and shall be maintained and operated in accordance with the recommendations of the manufacturer. Water-based spray gun cleaning shall be performed in a manner which minimizes VOC emissions to the atmosphere c. Handling products containing VOCs in such a manner so as to prevent spillage and loss. Any spilled materials shall be promptly cleaned up and stored in covered containers d. Keeping waste solvent and saturated rags in covered containers and minimizing solvent use. Clean up solutions shall be recirculated, stored and disposed of in a manner which shall minimize evaporation to the atmosphere e. Install and maintain particulate collection filters on each spray station in good operating condition.

Table 6	
EU	**Special Terms and Conditions**
120-49, 120-50, 120-57, 120 – TempDC	5. The Permittee shall install a pressure sensing device on each dust and cartridge collection device within 120 days of issuance of this Plan Approval. Within 180 days of issuance of this Plan Approval, the Permittee shall notify the MassDEP of the following: a. The installation date of the pressure sensing device, and b. Identification of the working pressure differentials for each dust and cartridge collector.
120-49, 120-50, 120-57, 120-62, 120-63, 120 – TempDC	6. The Permittee shall calibrate, maintain and continuously operate a pressure drop monitor for each dust and cartridge collection device.
	7. The Permittee shall have sufficient replacement cartridges and/ or filter media available on site.
Plant 8 wide	8. This Plan Approval, Tr X241383, supersedes Plan Approval Tr W073550, issued on March 1, 2006 in its entirety, with the exception that all plan application materials submitted as part of the Plan Approval Tr W073550 become part of this Plan Approval, Tr X241383.
	9. This Plan Approval, Tr 241383, includes particulate matter emission sources covered under Tr W073550 and Tr 118968 (with the exception of the truing operations). The truing operations were relocated to Plant 7 and will continue to be covered under Tr 118968 (in combination with other approval letters issued for dust collector in-kind replacements associated with the truing equipment).
	10. The Permittee shall not conduct the truing of rubber wheels at this location.

Table 6 Key:

CMR = Code of Massachusetts Regulations
EU = Emission Unit
HVLP = High Volume Low Pressure
MSDS = Material Safety Data Sheets
Tr = Transmittal number
VOC = Volatile Organic Compounds

B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including, but not limited to, rain protection devices known as “shanty caps” and “egg beaters.”

C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU	**Stack Height Above Ground (feet)**	**Stack Inside Exit Dimensions**	**Stack Gas Exit Velocity Range (feet per second)**	**Stack Gas Exit Temperature Range (^{o}F)**
120-2	22	12 inches	3-8	200-300
120-49	26	18 inches	30-40	70-75
120-50	18	24 inches	40-50	70-75
120-57	UAS (40) Spencer Vac (40)	UAS (18 inches) Spencer Vac (6 inches)	UAS (40 - 50) Spencer Vac (30-40)	70-75
120-62	43	30 inches	75-85	70-75
120-63	43	30 inches	75-85	70-75
120-TempDC	40	24 inches	40-50	70-75
Painting	20-40	1.0-1.8	5-20	70-75

Table 7 Key:

EU = Emission Unit

^{o}F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).

B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.

C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the

Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.

D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.

F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.

H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.

I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

J. Pursuant to 310 CMR 7.01(3) and 7.02(3) (f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6) (b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) and a completed Adjudicatory Hearing Fee Transmittal Form, a copy of which is attached hereto, must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Maria L'Annunziata by telephone at 508-767-2748, or in writing at the letterhead address.

Roseanna E. Stanley
Permit Chief
Bureau of Air and Waste

Enclosure

ecc: Worcester Office of Inspectional Services
Worcester Fire Department

MassDEP/Boston - Yi Tian
Suzanne Persyn, Ramboll Environ